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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/727,189	12/03/2003	Robert Pezzani	S1022.81078US00	5186

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EXAMINER	
ROMAN, LUIS ENRIQUE	

ART UNIT	PAPER NUMBER
2836	

DATE MAILED: 08/10/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/727,189	PEZZANI, ROBERT	
	Examiner	Art Unit	
	Luis Roman	2836	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *22 May 2006*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-12* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-12* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Applicant amendment filed on 05/22/06 has been entered. Accordingly no claims have been kept original, claims 1-12 have been amended and no claims have been cancelled. No new claims were added. It also included remarks/arguments.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this office action:

> A person shall be entitled to a patent unless –
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1, 2 are rejected under 35 U.S.C. § 102(b) as being anticipated by Shinoda (4779036).

Regarding claim 1 Shinoda discloses a method for controlling an SCR-type switch (Fig. 5 element 70a, b, c, d, e, f), consisting of applying on the switch gate several periods of an unrectified high-frequency voltage (col. 5 lines 66-68), the power of one high frequency (HF) halfwave being insufficient to start the SCR-type switch (Col. 5 lines 56-68).

Regarding claim 2 Shinoda discloses the control method of claim 1, wherein the high frequency (HF) voltage oscillates at a selected frequency between 10 kHz and a few GHz (col. 5 lines 67-68).

Claims 8 & 9 are rejected under 35 U.S.C. § 102(b) as being anticipated by Ueda et al. (4649414).

Regarding claim 8 Ueda et al. discloses an SCR-type switch component, comprising two main electrodes (Fig. 2(B) elements 30 & 33) and at least one control electrode (Fig. 2 (B) elements 34) formed on an insulating layer (Fig. 2(B) element 23) and arranged above a starting region of the component, said control electrode controlling the SCR-type switch component in response to an unrectified high frequency (HF) power supply (col. 7 lines 67-68 & col. 8 lines 1-3).

Regarding claim 9 Ueda et al. discloses the SCR-type switch component of claim 8.
Ueda et al. further disclose wherein the control electrode is arranged above a gate region of a thyristor (Fig. 2 [C] configuration NPNP which can be a thyristor)

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 3, 4, 5 & 6 are rejected under 35 U.S.C. §103(a) as being unpatentable over Shinoda (US 4779036) in view of Yuan et al. (Patent Application Publication US 2002/0066904 A1).

Regarding claim 3 Shinoda discloses the method of claim 1.
Shinoda does not disclose wherein the high frequency is applied via an insulating layer formed above a sensitive area of the component.
Yuan et al. teaches wherein the high frequency voltage is applied via an insulating layer (pg. 3 paragraph 33-34 & Fig. 1 element 104) formed above a starting area of the component (pg. 3 paragraph 33-34 & Fig. 1 element 102).
It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the Shinoda device with the Yuan et al. device features because both teach how to efficiently control the triggering of an semiconductor switch and the configuration of the radiation sensitive device (photodector) of Yuan et al. provides an apparatus with better isolation which will prevent erroneous triggering of the switch.

Regarding claim 4 Shinoda in view of Yuan et al. disclose the method of claim 3.
Yuan et al. further discloses wherein the high frequency voltage is applied above a gate region of a thyristor (col. 4 paragraph 45).

Regarding claim 5 Shinoda in view of Yuan et al. disclose the method of claim 3.
Yuan et al. further discloses wherein the high frequency voltage is applied above a gate region of a triac (col. 4 paragraph 45).

Regarding claim 6 Shinoda in view of Yuan et al. disclose the method of claim 3.
Shinoda further teaches wherein the high frequency voltage is applied via a high-frequency line having terminals for connection to the high frequency voltage (Fig. 5 elements 70 a, b, c, d, e, f).

Claim 7 is rejected under 35 U.S.C. §103(a) as being unpatentable over Shinoda (US 4779036) in view of Yuan et al. (Patent Application Publication US 2002/0066904 A1) and Spink (US 3824444).

Regarding claim 7 Shinoda in view of Yuan et al. disclose the method of claim 3. Shinoda in view of Yuan et al. does not disclose wherein the high frequency is applied via a winding thru an external connection of the device.
Spink teaches wherein the high frequency voltage is applied via a winding that generates a magnetic field or responds to a magnetic field (Fig. 1 elements GT1, GT2, GT3).
It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the Shinoda and Yuan et al. device with the winding of Spink to provide better isolation for the control gate of the semiconductor.

Claim 10 is rejected under 35 U.S.C. § 103(a) as being unpatentable over Ueda et al. (US 4649414).

Regarding claim 10 Ueda et al. discloses the SCR-type switch component of claim 8.
Ueda et al. does not disclose wherein the control electrode is arranged above a gate region of a triac.
It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the Ueda et al. device with a triac because a thyristor provides only unidirectional rectification and a triac would provide bidirectional rectification.
A triac is a configuration of a pair of thyristor connected back to back.

Claim 11 is rejected under 35 U.S.C. §103(a) as being unpatentable over Ueda et al. (US 4649414) in view of Shinoda (US 4779036).

Regarding claim 11 Ueda et al. discloses the SCR-type switch component of claim 8.

Ueda at al. does not disclose wherein the control electrode is a high-frequency line having terminals for connection to the high frequency power supply

Shinoda further teaches wherein the control electrode is a high-frequency line having terminals for connection to the high frequency power supply (col. 6 lines 7-13 & Fig.5 elements 70 a, b, c, d, e, f).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the Ueda et al. device with Shinoda teachings to have the control electrode controlled by a high-frequency signal.

Claim 12 is rejected under 35 U.S.C. §103(a) as being unpatentable over Ueda et al. (US 4649414) in view of Spink (US 3824444).

Regarding claim 12 Ueda et al. discloses the SCR-type switch component of claim 8.

Ueda et al. does not disclose wherein the high frequency is applied via a winding that generates a magnetic field or responds to a magnetic field.

Spink teaches wherein the high frequency is applied via a winding that generates a magnetic field or responds to a magnetic field (Fig. 1 elements GT1, GT2, GT3).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the Ueda et al. device with the winding of Spink. This device is in the same solving problem area and provides better isolation for the control gate or connection of the semiconductor.

Applicant's arguments filed 05/22/06 have been fully considered but they are not persuasive.

Regarding claim 1 Applicant argues in his Remarks that "Shinoda in no way teaches or suggests that an SCR can be switched by a high frequency signal, a power of one high frequency have wave being in sufficient to start the SCR-type switch" (Page 3 paragraph 3).
The examiner relays in Shinoda (US 4779036) "Even if erroneous operation state occurs when the gate signal is supplied not once but repetitively, the thyristor can be reliably turned on" (Col. 5 lines 64-66).
Shinoda explains the usage of a high frequency signal that is repetitively applied to the switch that means that means that the power of half cycle is insufficient to start the switch.

Regarding claim 8 Applicant argues in his Remarks that "This is diametrically different from the SCR-type switch component recited in claim 8 in which the control electrode controls the SCR-type switch component in response to an unrectified high frequency power supply" (Page 5 last paragraph).
The examiner relays in Ueda et al. (US 4649414) "The device for preventing degradation of the voltage resistance property provided by the polycrystalline silicon field plate electrode 32 is also effective for high frequency signals and transient voltages. Moreover, as there is no problem of aging, the reliability of the semiconductor switch can be improved" (Col. 7 line 67 to Col. 8 line 5).
Ueda et al. explains that the switch is more resistant to aging and to the conduction of high frequencies.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL.** See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Luis E. Román whose telephone number is 571-272-5527. The examiner can normally be reached on Mon – Fri from 7:15 AM to 3:45 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Brian Sircus can be reached on 571-272-2800 x 36. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from Patent Application Information Retrieval (PAIR) system.

Status information for unpublished applications is available through private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Luis E. Román
Patent Examiner
Art Unit 2836

LR/080406

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